

Explanation of Amendments in the Claims:

Please add new claims as follows:

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AI 21.(new) The apparatus according to Claim 1 wherein the central office includes an interface module arranged to transport the ADSL signals on the bi-directional link in a modulated format intended for transmission on the metallic telephone lines and wherein these the interface module at the central office location is arranged to modulate a high frequency carrier and where this carrier is demodulated at the field cabinet to recover the DSL signal which is then transmitted on the metallic telephone line to the customer location.

22.(new) The apparatus according to Claim 21 where the ADSL signal is transported without significant amplitude change.

23.(new) The apparatus according to Claim 1 wherein the interface units are arranged such that multiple ADSL signals from respective customer locations are combined to a single broadband signal through the use of frequency division multiplexing.

24.(new) The apparatus according to Claim 1 wherein the interface units are arranged such that a plurality of ADSL signals individually modulate a respective plurality of high frequency carriers separated in frequency by an amount that avoids interference between the individual ADSL signals.

25.(new) The apparatus according to Claim 1 wherein the interface units are arranged such that power failure or failure in the ADSL transmission equipment does not impair the POTS service and where

26.(new) The apparatus according to Claim 1 wherein the interface units are arranged such that the ADSL signals are not concentrated, as in statistical multiplexing, and that all customers may simultaneously utilize the full ADSL bit rate.

AI 27.(new) The apparatus according to Claim 1 wherein the field cabinet receives its power supply from the central office through paired metallic telephone lines including wire pairs that would otherwise be used for voice frequency transmission.

28.(new) The apparatus according to Claim 1 wherein the central office and the interface module are arranged such that the ADSL signals are communicated, in their modulated format, over the bi-directional link between the central office and field cabinet and wherein the ADSL signals are sampled and converted to digital format as preparation for transmission on the optical link and where, after transmission, the DSL signals are recovered without substantial loss in amplitude and signal-to noise-ratio.

CONT 29.(new) The apparatus according to Claim 28 wherein the central office and the interface module are arranged such that the ADSL signal at the central office is directly obtained from the digital subscriber loop multiplexer in a sampled digitized format suitable for digital multiplexing and transmission on the transmit and receive channels of the bi-directional fiber optic link.

30.(new) The apparatus according to Claim 1 wherein the central office and the interface module are arranged such that the ADSL signal at the central office is obtained from the DSLAM in a continuous time analog format

in the bidirectional two-wire transmission form normally transmitted on metallic telephone lines.

31.(new) The apparatus according to Claim 1 wherein the central office and the interface module are arranged such that the sampled ADSL signals are digitized to allow efficient transmission on the link.

AI 32.(new) The apparatus according to Claim 1 wherein the central office and the interface module are arranged such that the analog ADSL signal is sampled and digitized for transmission on the link using those A/D converters specifically designed for commercial DSL modems.

33.(new) The apparatus according to Claim 1 wherein the central office and the interface module are arranged such that multiple ADSL signals are combined to a single high-speed signal through the use of time division multiplexing.

CONT 34.(new) The apparatus according to Claim 1 wherein the central office and the interface module are arranged such that the transmit and receive samples are synchronized together using loop timing to ensure that there is no carrier phase shifts that result in spinning of the constellation over time, with a master clock and a slave clock, the slave clock PLL has a very low closed loop bandwidth (~19Hz) so that spectral smearing has no noticeable effect on the system performance.

35.(new) The apparatus according to Claim 1 wherein the bi-directional link comprises a fiber optic link which utilizes digital transmission components designed for use with Gigabit Ethernet.

36.(new) The apparatus according to Claim 1 wherein the bi-

directional link comprises a fiber optic link which utilizes digital transmission

components designed for use with SONET.

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